

TWO NEW NASAL MITES, *PTILONYSSUS MOROF-  
SKYI*, N. SP., AND *STERNOSTOMA PORTERI* N. SP.,  
FROM NORTH AMERICAN BIRDS (ACARINA;  
RHINONYSSIDAE).<sup>1, 2, 3</sup>

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In the course of studying the distribution of the nasal mite fauna in North American birds we have found two additional new species, one belonging to the genus *Ptilonyssus*, *sensu lato*, collected from a variety of fringillid hosts, the other of the genus *Sternostoma* taken from picid hosts.

*Ptilonyssus morofskyi*, n. sp.

The fringillids found infested with this species include the American goldfinch, savannah sparrow, song sparrow, vesper sparrow, field sparrow, fox sparrow, and slate-colored junco. *Ptilonyssus morofskyi* is most closely related to *Ptilonyssus serini* Fain, 1956, a species described from several Central African fringillids. It can be separated from *P. serini* on the basis of (1) a larger sternal plate, which is wider than long, (2) an opisthosomal plate which tapers more abruptly posteriorly and possesses on the anterolateral angles a group of alveoli, (3) the anal plate which tapers less abruptly and has a short, wide cribrum and (4) the lack of metasternal setae which are present in *P. serini*.

**Female.**—*Measurements*, in microns, of holotype and range in parentheses of measured paratypes as follows: LI<sub>d</sub> = 528 (432–528); WI<sub>d</sub> = 322 (290–322); LPP = 180 (175–192); WPP = 175 (169–182); LOP = 161 (149–168); WOP = 120 (116–125); LSP = 96 (84–96); WSP = 110 (103–114); LGP = 106 (105–110); WGP = 67 (65–70); LAP = 48 (48–55); WAP = 55 (48–55); LG = 86 (81–91); WG = 58 (50–60); LP = 50 (46–50); LCH = 62 (58–67); LCh = 4 (4); LPer = 31 (31–34); LLeg I = 254 (243–262); WLeg I = 46 (43–46); LLeg IV = 240 (231–252); WLeg IV = 36 (34–38). (See Fain and Hyland, 1962, for explanation of abbreviations.)

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*Dorsum*: (Fig. 8). *Podosomal plate* conspicuously 7-sided with pronounced anteromedian projection; surface with a fine reticulate pattern except in central portion and a pattern of vacuoles as figured; eight pairs of small setae, three pairs of which are larger and more attenuate than the others. *Opisthosomal plate* elongate, about one and one-half times as long as wide and tapering to a blunt point posteriorly; surface with a fine reticulate pattern and a series of vacuoles as figured; seven pairs of setae, the posterior pair stouter and more heavily sclerotized.

Dorsal cuticle striated, with seven pairs of small setae, three pairs lateral and posterior to the podosomal plate and four pairs lateral to the opisthosomal plate. *Stigmata* dorsal, at level of coxa III, with short peritreme.

*Venter*: (Fig. 3). *Sternal plate* irregularly shaped, wider than long, with a reticulate pattern, three pairs of minute setae and two pairs of pores. *Genital plate* tongue-shaped, with central sclerotized pattern, and with setal bases of genital setae located on the plate and conspicuous (left genital seta only on holotype); genital apodemes conspicuous. *Anal plate* elongate, with a small cribrum (in nearly all specimens cribrum is terminal and directed dorsad; LAP of holotype greater than 48 microns). Paired anal setae attenuate and at level of anal opening; median seta small and blunt. Metasternal setae absent or only a remnant in the form of a setal base at level of coxa IV; opisthosomal cuticle striated and armed with three pairs of small pointed setae in two transverse rows of two and four each.

*Gnathosoma*: (Fig. 2). Ventral in position; base with one pair of setae and a median row of four or five deutosternal setae ventrally, and dorsolaterally with a row of acuminate denticles. Hypostome ventrally with two pairs of small setae. *Chelicerae* elongate, and with gradual taper. Chela small, movable portion triangular. *Palps* with four free segments, the femur with one ventromedial seta, two dorsal, and one lateral seta; tibia with one ventromedial and three dorsal setae; tarsus with three attenuate and four microsetae ventrally, two attenuate apical setae, and about seven microsetae dorsally.

*Legs*: All legs six-segmented. Coxae I through III with two microsetae; coxa IV with one seta. Other segments of all legs with one or more short blunt setae per segment ventrally and dorsally with one or more short pointed setae per segment as figured. All tarsi with caruncle and claws. *Tarsus I* (Fig. 1): Sensory plaque with three solenidion-type setae with one longer than others, three

long attenuate, and two smaller setae; remainder of dorsal surface fitted with two small attenuate setae; ventrally with six attenuate setae of varying lengths on apical half and two blunt microsetae. Claws straight, tapering and ending within the caruncle. *Tarsus IV* (Fig. 5): Dorsal surface with three short attenuate setae. Ventral surface with two large partially inflated setae and four long attenuate setae located apically, two small microsetae centrally placed and three larger spur-like setae along dorsolateral surface; claws hooked.

**Male.**—*Measurements*: LI<sub>d</sub> = 317; WI<sub>d</sub> = 187; LPP = 156; WPP = 147; LOP = 134; WOP = 118; Length sterno-genital plate (LSGP) = 161; Width sterno-genital plate (WSGP) = 87; Length ventro-anal plate (LVAP) = 113; Width ventro-anal plate (WVAP) = 82; LAP = 48; WAP = 41; LG = 103; WG = 48; LP = 46; LCH = 50; LCh = 19; LPer = 26; LLeg I = 194; WLeg I = 50; LLeg IV = 178; WLeg IV = 41.

The only male specimen found in the collection which includes 62 females is considerably smaller in all dimensions than the females. To what extent this size differential is representative of the males is not known.

*Dorsum*: Similar to female. Edges of podosomal plate slightly curled reducing LPP and WPP measurements. Opisthosomal plate wide, with three additional pairs of setae on lateral borders. Cuticle of opisthosoma armed with one pair of small setae.

*Venter*: *Sterno-genital plate* (Fig. 6) well defined, with irregular borders and partially surrounding the genital opening; central vacuolate pattern distinct. Three pairs of sternal setae on plate, the third pair larger; pores associated with first two pairs; metasternal and genital setae also located on plate. A moderately well defined *ventro-anal plate* (Fig. 7) present bearing two pairs of median setae; anal portion of plate similar to female including setae and cribrum.

*Gnathosoma*: Palps similar to female; chelicerae with chela forming about two-fifths total length (Fig. 9).

*Legs*: Legs, including tarsi, similar to female with exception of claws on tarsus I which are hooked.

**Protonymph.**—Specimen from the field sparrow, *Spizella pusilla*, (Host #A600413-3) with an idiosoma measuring 406 microns in length and 288 in width. Pygidial setae heavy, attenuate, and minutely barbed.

**Types.**—The *Holotype* and two *paratype* females were collected from the nasal passages of the American goldfinch, *Spinus tristis*,

C60-08-18-5, collected at the Kellogg Gull Lake Biological Station, Hickory Corners, Kalamazoo Co., Michigan, by David T. Clark on 18 August 1960. The *allotype* male, the only male seen, was taken from the savannah sparrow, *Passerculus sandwichensis*, H61-09-23-12, in New Shoreham (Block Island), R. I., by G. West, K. Hyland and L. TerBush on 23 September 1961 along with 3 *paratype* females.

Other paratypes and the hosts on which they were collected are as follows: On *Passerculus sandwichensis*, (savannah sparrow); 3 ♀♀, Block Island, R. I., G. West, K. Hyland and L. TerBush, H61-09-23-12; 1 ♀, Block Island, R. I., G. West, K. Hyland and L. TerBush, H61-09-23-14; 6 ♀♀, Block Island, R. I., G. West, K. Hyland and L. TerBush, H61-09-23-27. On *Pooecetes gramineus* (vesper sparrow): 1 ♀, Gilkey Lake, Barry Co., Michigan, K. Hyland, Hedwig Ford and D. T. Clark, 59-07-08-14. On *Junco hyemalis* (slate-colored junco): 1 ♀, Block Island, R. I., G. West, K. Hyland and L. TerBush, H61-09-23-7. On *Spizella pusilla* (field sparrow): 11 ♀♀, 5 NN, Weeping Water, Nebraska, N. Braasch, A600413-3. On *Passerella iliaca* (fox sparrow): 11 ♀♀, Kingston, R. I., G. West, H61-11-27-2. On *Melospiza melodia* (song sparrow): 15 ♀♀, Raynham, Mass., R. Hayes, H60-08-04-2; 2 ♀♀, Duck Lake, Hickory Corners, Mich., D. T. Clark, C60-07-28-3; 2 ♀♀, 42nd St. N., Kalamazoo Co., Mich., D. T. Clark, C60-07-27-9; 8 ♀♀, IN, South Kingstown, R. I., L. TerBush, H61-05-05-8.

The holotype has been deposited in the United States National Museum (USNM No. 2690), as has the allotype, two paratypes and a protonymph. Paratypes have been deposited with the Entomological Museum, Michigan State University, with Alex Fain, Institut de Médecine Tropicale Prince Léopold, Antwerp, Belgium, with R. W. Strandtmann, Texas Technological College, Lubbock, and in the collection of the author.

*Ptilonyssus morofskyi* is named for Walter F. Morofsky, Director of the Kellogg Gull Lake Biological Station, a branch of Michigan State University where this work was initiated.

### ***Sternostoma porteri*, n. sp.**

This species has been collected from the nasal cavities of the yellow-shafted flicker (*Colaptes auratus*) and the downy woodpecker (*Dendrocopos pubescens*) and is the first rhinonyssid reported from the family Picidae.

This species appears most closely related to *Sternostoma durenii*

Fain, 1956, but differs from it in having a longer and narrower sternal shield, a more elongate podosomal plate, and an anal plate which is more elongate and in which the setae are all situated well behind the anal opening. The dorsal plates of *Sternostoma hutsoni* Furman, 1957 and *S. porteri* are similar but the sternal plate of *S. hutsoni* is keg-shaped and not nearly as long as for *S. porteri*, and the genital plate is smaller in both dimensions than in *S. hutsoni*. *S. porteri* can be separated from all known species of *Sternostoma* with the exception of *S. nectarinia* Fain, 1956, on the basis of a sternal plate which is two and one-half times as long as wide. It can be separated from *S. nectarinia* by differences in the shape of the podosomal, opisthosomal, genital and anal plates.

**Female.**—*Measurements* of holotype and range in parentheses of measured paratypes as follows: LI<sub>d</sub> = 806 (470–806); WI<sub>d</sub> = 325 (269–358); LPP = 325 (283–325); WPP = 216 (208–224); LOP = 177 (156–203); WOP = 138 (138–153); LPer = 11.7 (11.7–13.0); LSP = 158 (120–158); WSP = 55 (44–68); LGP = 106 (91–109); WGP = 53 (53–65); LAP = 62 (52–78); WAP = 56 (34–56); LG = 182 (106–182); WG = 83 (83–104); LP = 94 (57–94); LCH = 112 (96–117); LCh = 6.8 (5.7–6.8); LLeg I = 380 (286–380); WLeg I = 91 (65–96); LLeg IV = 381 (291–381); WLeg IV = 78 (55–81).

*Dorsum:* Podosomal plate longer than wide, somewhat pentagonal, with broad anteromedian projection, concave lateral borders, and convex posterior border. Surface with a pattern of alveoli as figured, a background of lines forming a mosaic pattern and with punctations; armed with seven pairs of minute setae, three pairs located along lateral border and four pairs medially; with two pairs of pores. Opisthosomal plate longer than wide, wider anteriorly and tapering to blunt point posteriorly. Surface with a pattern of alveoli as figured, a background of lines forming a network, and punctations; four pairs of minute setae located medially. Dorsal surface of opisthosoma finely striated and with three pairs of microsetae. Stigmata dorsal, at level of coxa III, small, without peritreme.

*Venter:* Sternal plate elongate, approximately two and one-half times as long as wide, with faint borders, and a finely punctate surface; three pairs of setal bases are evident but setae are wanting. Genital plate small, elongate, finely punctate and with a median quadripartite vacuolate area. Genital apodemes conspicuous. Anal plate terminal, elongate with small cribrum; three setae all positioned posterior to anal opening. Cuticle finely striated, three

pairs of minute setae located on opisthosomal integument.

*Gnathosoma*: Ventral in position, base without setae and without dorsal ctenidium. *Chelicerae* elongate, with moderately abrupt taper toward tip; chelae small, movable digit triangular in shape. *Palps* with four free segments, femur without setae, genu with two dorsal and two lateral setae, tibia with three dorsal and two lateral setae, tarsus with two moderately long terminal setae and three or four subterminal microsetae dorsally and two subterminal microsetae ventrally.

*Legs*: All legs six-segmented. Most segments with several small pointed setae on both dorsal and ventral aspects. Tarsi with modified setae, caruncles and claws. *Tarsus I* (Fig. 13): Sensory plaque with three solenidia, three attenuate, and two microsetae. Remaining dorsal surface with five short pointed setae, and ventrally with five similar setae. Claws slightly curved, pointed and ending within carnucle. *Tarsus IV* (Figs. 13, 14): Dorsally with basal row of three small pointed setae, and distad another row of three, the middle seta more attenuate. Distally with two long attenuate setae. Ventral surface with three pointed setae positioned as illustrated (Fig. 13), and three expanded setae located distally. Claws well developed, hooked.

**Male.**—Unknown.

**Nymph.**—The single nymph was taken from *Colaptes auratus* (H62-06-26-4) and measures 538 microns in length and 288 in width. All plates on idiosoma are lacking with exception of a poorly demarcated anal plate. Claws on tarsus I small, short (10 microns) and slightly hooked.

**Types.**—*Holotype* and one *paratype* female were collected from the yellow-shafted flicker, *Colaptes auratus*, taken at the Kellogg Bird Sanctuary, Hickory Corners, Kalamazoo County, Michigan by T. W. Porter, 17 Aug. 1958.

Other paratypes and the hosts on which they were collected are as follows: On *Colaptes auratus* (yellow-shafted flicker): 7 ♀♀, Bradford, R. I., A. Moorhouse, H62-09-08-1; 4 ♀♀, IN, Kingston, R. I., A. Moorhouse, H62-06-26-4; 1 ♀, Kingston, R. I., A. Moorhouse, H62-06-25-1; 1 ♀, Kalamazoo Co., Mich., K. Hyland, Hedwig Ford & D. T. Clark, 59-07-10-1. On *Dendrocopos pubescens* (downy woodpecker): 2 ♀♀, Shiawesee Co., Mich., D. T. Clark & Hedwig Ford, C60-09-03-5; 1 ♀, Gothenburg, Nebr., N. Braasch & W. Atyeo, A590610-9; 2 ♀♀, Kalamazoo Co., Mich., D. T. Clark and Mary English, C60-08-04-1; 9 ♀♀, Kalamazoo Co., Mich., Hedwig Ford and D. T. Clark, 59-08-02-2.

The holotype has been deposited in the United States National Museum (USNM No. 2691) along with two paratypes and the nymph. Paratypes have also been deposited with the Entomological Museum, Michigan State University, the Entomological Museum, University of Nebraska, in the collections of Alex Fain, Institut de Médecine Tropicale Prince Léopold, Antwerp, Belgium, R. W. Strandtmann, Texas Technological College, Lubbock, and the author.

*Sternostoma porteri* is named for T. Wayne Porter, Assistant Director of the Kellogg Biological Station, Hickory Corners, Michigan.

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#### LITERATURE CITED

- Fain, A. and K. E. Hyland.** 1962. The mites parasitic in the lungs of birds. The variability of *Sternostoma tracheacolum* Lawrence, 1948, in domestic and wild birds. *Parasitology* 52: 401-424.

#### EXPLANATION OF PLATES

*Ptilonyssus morofskyi*, new species. Fig. 1, Tarsus I, dorsolateral view. Fig. 2, Gnathosoma: right, ventral view—left, dorsal view. Fig. 3, Ventral view. Fig. 4, Anal plate of paratype from *Spizella pusilla*. Fig. 5, Tarsus IV, ventral view. (Figs. 1, 2, 3, and 5 of holotype).

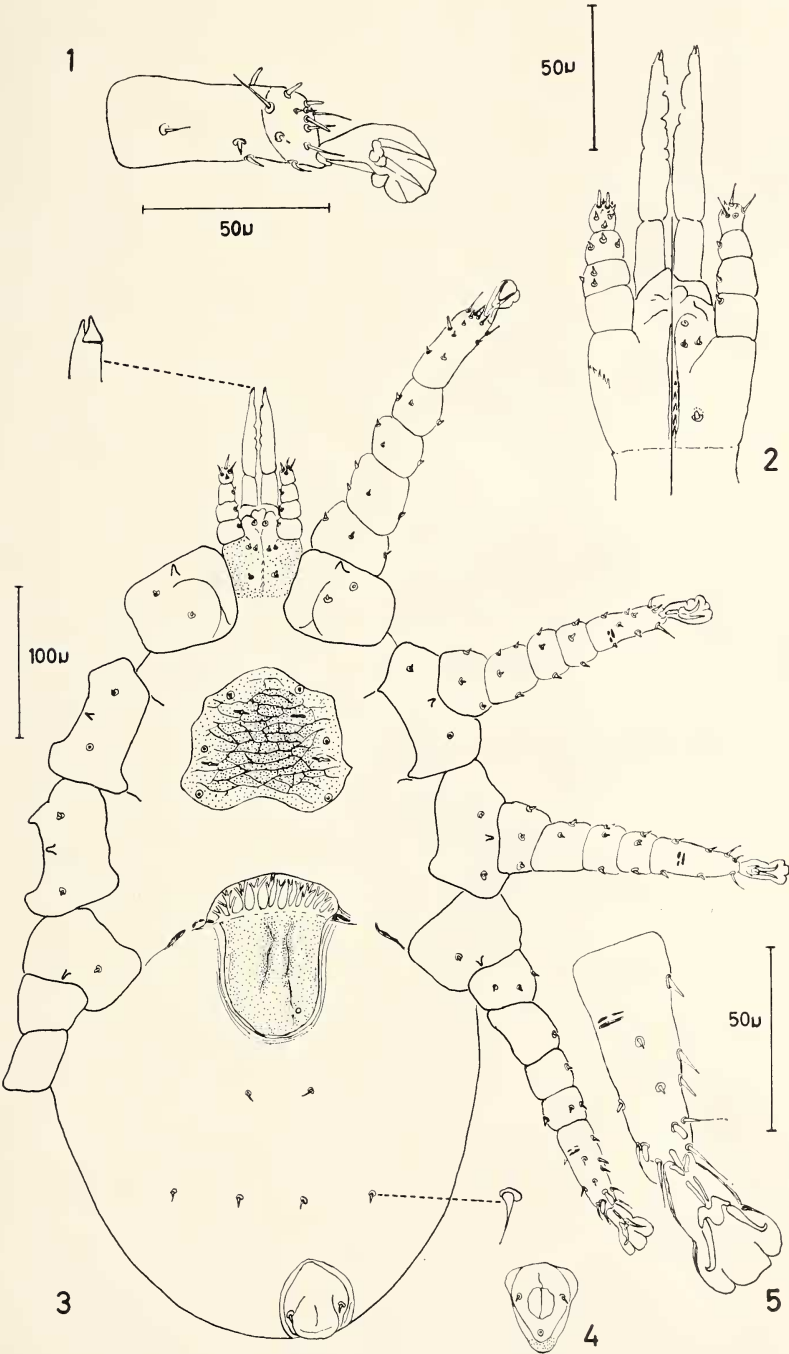
*Ptilonyssus morofskyi*, new species. Fig. 6, Sternogenital plate and Fig. 7, Vento-anal plate of allotype male from *Passerculus sandwichensis*. Fig. 8, Dorsal view, holotype. Fig. 9, Chelicera of allotype.

*Sternostoma porteri*, new species. Fig. 10, Podosomal plate of paratype female from *Dendrocopos pubescens*. Fig. 11, Gnathosoma of holotype: right, ventral view—left, dorsal view. Fig. 12, Dorsal view, holotype.

*Sternostoma porteri*, new species. Fig. 13, Tarsus IV, ventral view; Fig. 14—Tarsus IV, dorsal view. Fig. 15, Tarsus I, dorsal view; Fig. 16, Ventral view, holotype. Fig. 17, Anal plate of paratype from *Dendrocopos pubescens*.

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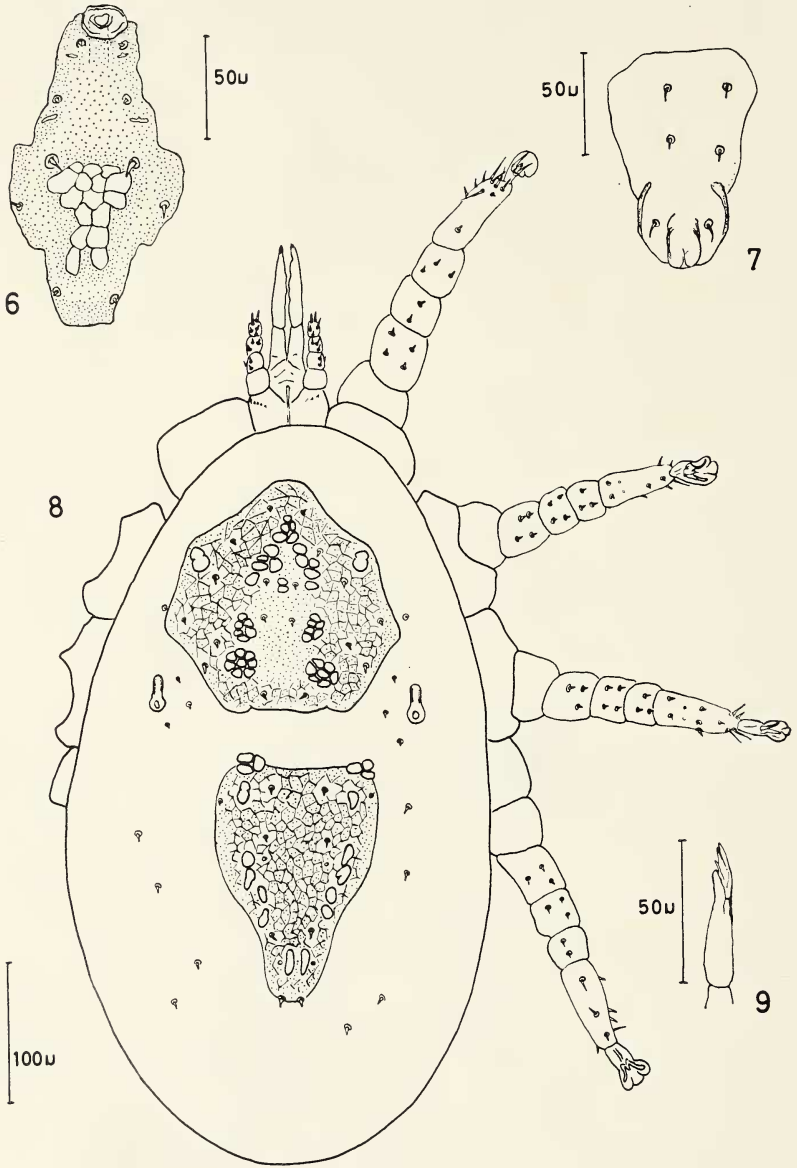
PLATE I





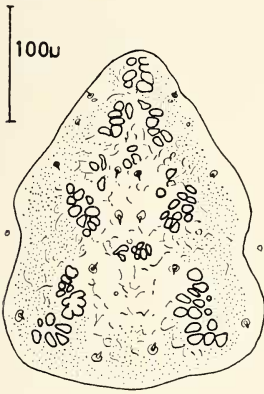
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PLATE II

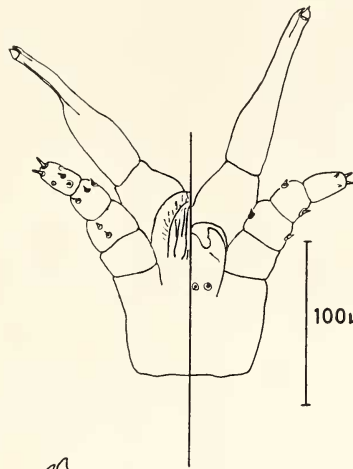


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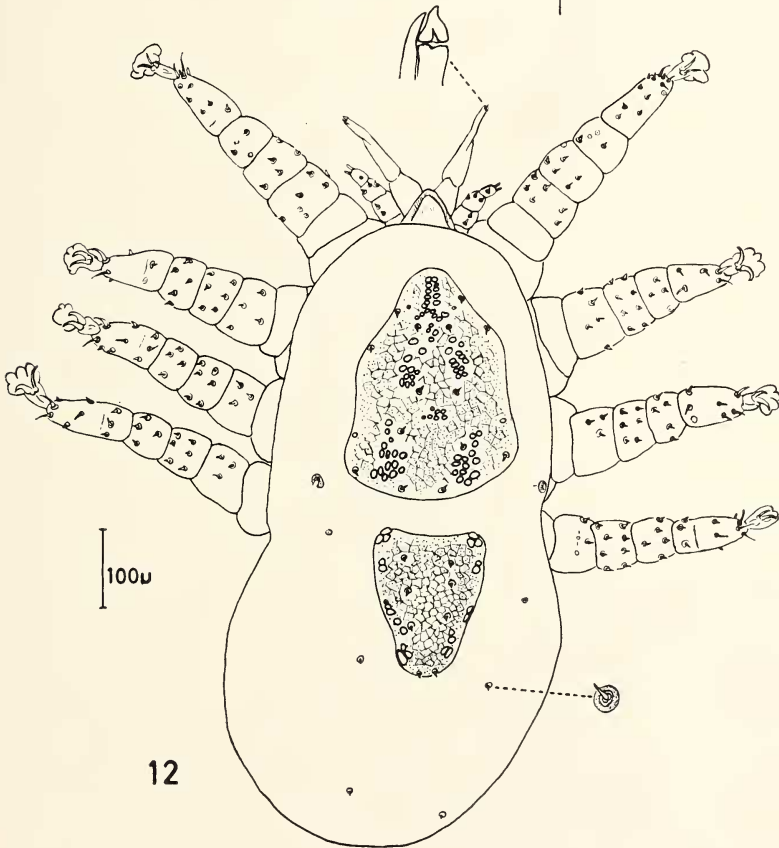
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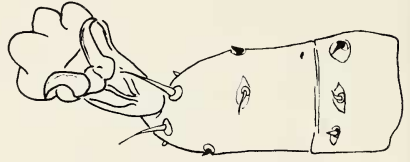
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PLATE IV

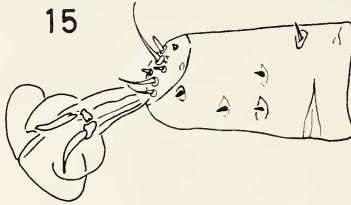


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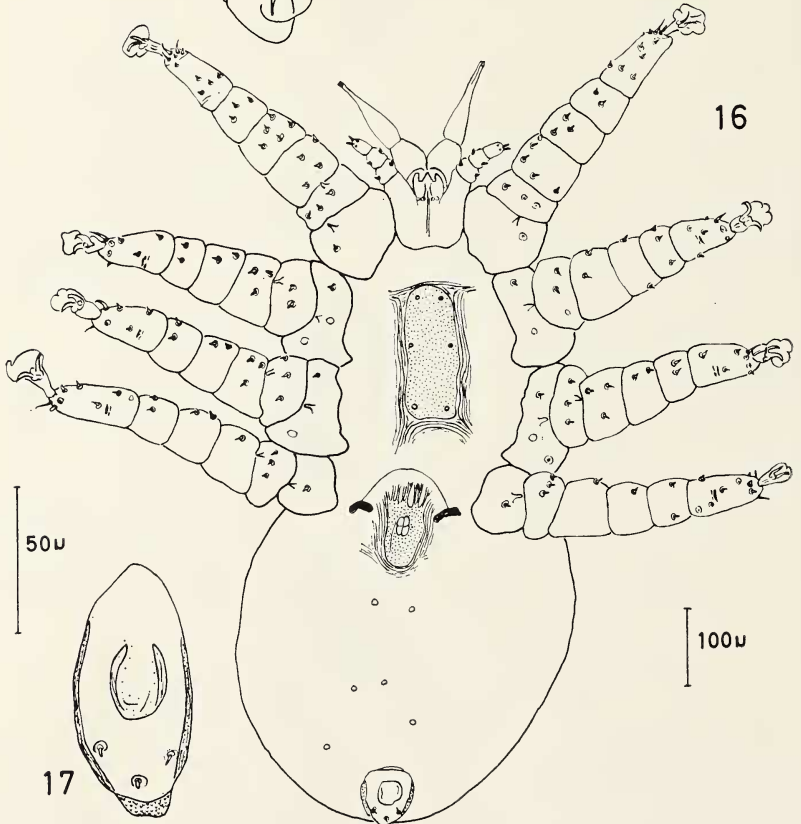


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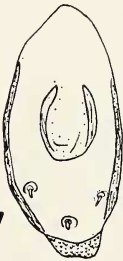
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16

50  $\mu$

100  $\mu$



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